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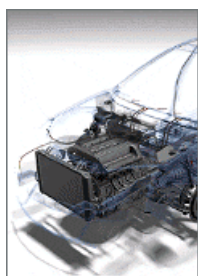BREAKING NEWS ▶ NEWS & ANALYSIS: EUV Backlog Grows as ASML Sets Sales Record ◄ ●●●●●●● ▶

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News & Analysis

Rivals Chasing Velodyne in Lidar Race

Who's who in emerging lidar market

Junko Yoshida
8/18/2016 09:55 AM EDT
6 comments

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MADISON, Wis. — As lidar emerges as one of the most sought-after sensor technologies for autonomous cars, startups specializing in lidars are popping up everywhere in Israel, Germany, Canada, New Mexico and California.

Velodyne Lidar, Inc. (Morgan Hill, Calif.), which shipped its first products in 2007, remains by far the most experienced and best funded lidar tech company. Velodyne announced earlier this week a combined $150 million investment from co-investors Ford Motor Company and China's leading search engine company Baidu, Inc.

Velodyne has a number of new product lines sampling today, including those based on VLP 16 and VLP 32. Mike Jellen, president & chief operating officer, isn't ready to announce design wins due to non-disclosure agreements, but revealed that Velodyne lidar technology is already in 25 different autonomous car programs today.

Mike Demler, senior analyst at The Linley Group, told EE Times, "Velodyne claims their 'lidar sensors are used by virtually every car manufacturer and tier 1 supplier in the business.'"

Reportedly, Baidu, Ford, Google, Nissan, and Volvo use Velodyne in their autonomous test vehicles, and they have also been used in some "autonomous transport" vehicles, such as Navya Arma, which makes a 100 % electric and autonomous transport vehicles.

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resistion It was 32x21 on 53 nm pitch nominally though they also showed the other results you mentioned. The emphasis was reducing the LCDU but nano failures were also pointed out.

1/18/2018
7:48:54 PM

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Velodyne LiDAR Pucks (Compact VLP 16) to serve as 'Eyes' for NAVYA
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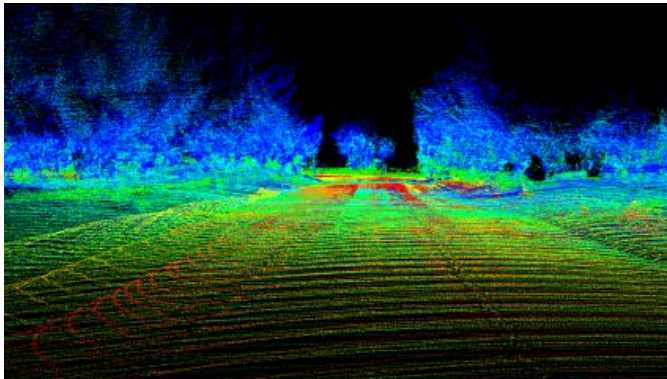
Wave of startups
The automotive industry, however, is still in early days with
autonomous cars. The battle of cheaper, smaller lidars has begun
with a wave of startups, all poised to compete with Velodyne in the
lidar race.

Among the competitors are Quanergy (Sunnyvale, Calif.), Innoviz
Technologies (Kfar Saba, Israel), Aerostar (Syosset, NY),
LeddarTech (Quebec, Canada), Phantom Intelligence (Quebec,
Canda), Strobe (Pasadena, Calif.), TriLumina (Albuquerque, NM)
and Ibeo Automotive Systems (Hamburg, Germany).

Quanergy, which officially launched "the world's first solid-state lidar
for self-driving cars" at the Consumer Electronics Show this year,
discussed a plan for dramatically lowering costs to $250 per
sensor. The company announced last fall a partnership with Delphi
Automotive Systems in lidar development, but has not launched the
product yet.

Ian Riches, director of global automotive practice at Strategy
Analytics, noted, "Quanergy has not publicly announced any design
wins for production vehicles, but has 'Public partners' that include
Mercedes Benz, Hyundai and Renault-Nissan."

Asked to compare Velodyne's lidar to that of Quanergy, Riches
explained, "The key difference is that the Velodyne units are still
'solid state hybrid' LiDARs. This means that actuation and
detection are solid state, but the scanning is mechanical. The
Quanergy units are fully solid state, with no moving parts."

Quanergy LiDAR Point Cloud (Source: Quanergy)

Innoviz Technologies last week (Aug. 8) emerged from stealth mode and announced it raised $9 million in a Series A financing round.

Next page: Broader adoption

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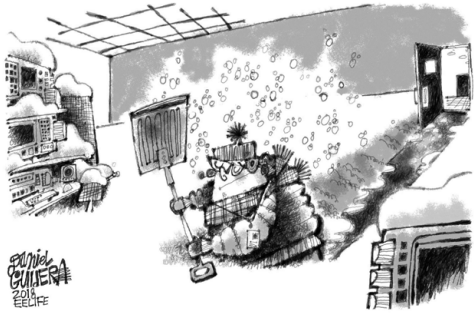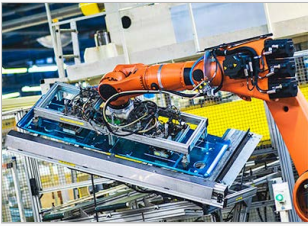
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Re: a bit different than standard automotive
VisionYG   8/28/2016 7:55:10 PM

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Thanks for information. Single Lidar will be the most welcome to OEM...if ready

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Interesting
dt_hayden   8/22/2016 5:16:37 PM

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"TriLumina ... is developing chips to advance time of flight capabilities while reducing power requirements and size."

What does it mean to advance the time of flight of light?

"There is also **Slamtec,** a small start-up company based in China ..."

Probably not the best name for a collision avoidance company.

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LiDAR & Sensor Fusion
MICHAEL NOONEN   8/19/2016 9:26:50 AM

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Junko: Excellent overview of the very active and accelerating LiDAR space. Insightful comment from NXP about sensors (LiDAR, RADAR, Cameras) "cross validating" for more robust and deployable solutions. Sensor fusion and systems integration might prove to be as important as the race to lower cost solid state LiDAR sensors.

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Re: a bit different than standard automotive
realjjj   8/18/2016 12:16:13 PM

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That assumes straight to level 5 and not everybody aims for that. Maybe to some extent people are changing their minds and aiming for full autonomy not a gradual transition. In any case, car ownership won't go away overnight so hardware costs will still matter and autonomous features would be key marketing assets. With car as a service you are right, what will matter is the right balance between total costs and quality. At least early on, before competition puts more pressure on costs.

There is also the line of thinking that the software is the hard part and with better software you can save on hardware. Short term, fog and dust are problems too for LIIDAR but those are likely solvable.

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a bit different than standard automotive
alex_m1   8/18/2016 11:29:09 AM

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Junko, i suspect that this will not play out as usual with automotive technologies - since the business model will be taxi-like, and $500 over the lifetime of a taxi per trip is insgnificant. Even the extra processing isn't that big of a deal.What will be most important is reliabillity - both of the lidar and the total perfomance of the vehicle.

This will be true both at the design and regulatory levels, but also at the consumer level - most won't care if the trip is cheaper by few cents but even a hint that the more expensive system will be more reliable would be very good for marketing.

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alex_m1   8/18/2016 11:29:07 AM

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